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Navigating Polyphony and Diversity in Philosophy and Beyond

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Publication date

2022

Document Version

Final published version

Published in

Rules, Regularities, Randomness

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Citation for published version (APA):

Keestra, M. (2022). Configurations of Pluralisms: Navigating Polyphony and Diversity in Philosophy and Beyond. In K. Stenning, & M. Stokhof (Eds.), *Rules, Regularities, Randomness: Festschrift for Michiel van Lambalgen* (pp. 87-100). Institute for Logic, Language and Computation, University of Amsterdam. <https://philarchive.org/rec/STERRR-5>

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Chapter 10

Configurations of pluralisms

Machiel ~~Kee~~stra

Navigating polyphony and diversity, in philosophy and beyond

A short prelude: from tragedy to polyphony with Michiel

Supervising a dissertation is in some sense comparable to directing an opera: the supervisor hasn't written the libretto nor the score, is not performing one of the main character roles nor an instrument that accompanies the singers. Nonetheless, the supervisor's role is important in that they are guiding the overall interpretive and rehearsal process such that the end result is a meaningful and consistent whole which does in some sense reflect or breathe their thoughts. When I enjoyed Michiel van Lambalgen and Martin Stokhof's careful and valuable supervision of my *Sculpting the space of actions. Explaining human action by integrating intentions and mechanisms* (Keestra (2014)), I first made use of examples from ancient tragedy to support my defence of a framework for explaining a plurality of processes constituting how humans determine their actions. Tragic actions were used to illustrate how action decisions can occur both in an automatised, habituated mode and in a rationally controlled way, with there being important interactions between the two modes. Being aware that both of us enjoy singing individually as well as choral singing, Michiel suggested that opera singing might better than tragic action illustrate and reflect the different modes. Happily embracing that suggestion, I illustrated my framework with the observation that most singers will have that our initial rationally controlled yet less flexible performance might become habitual and automatised over time and consequently also become more nuanced, flexible and complex. This process does not prevent this automatised performance from complying with musical and interpretive standards and being in harmony with the rest of the score, on the contrary.

This grateful memory has inspired the brief exploration of pluralism below, starting from ancient tragedy and inspired by the musical notions of polyphony and counterpoint leading to reflection on how a pluralism can coexist. As any form of pluralism is specifically opposed to monism, I'm especially interested in considering different configurations of the plurality of options presented by pluralism. This also offered a lens on interesting work from Michiel in which pluralism of sorts figures as well.

Pluralism and diversity in tragedy, disturbing ancient monism

One of the most intriguing moments in western cultural history is when, according to Aristotle's account, the imitations and representations of humans as performed in rituals and arts became more complex and dynamic, especially with the emergence of tragedy. In his innovative and influential description of the 'evolution of tragedy' - as one commentator puts it - Aristotle pays attention to a history spanning several centuries and characterised by the development of novel genres, each of which has its pertinent object, its formal properties and certain means of performance (Aristotle et al. (1968)). If we trace back this history while focusing on the last feature, the means of performance, this history is relatively simple, displaying a few decisive moments. It starts in prehistoric times with dithyrambian and hymnal songs performed mainly during religious rituals, according to Aristotle.

Even though these songs did include exchanges between calls and answers, these were only a shallow precursor to what over time would grow into genuine exchanges between protagonists representing different, sometimes even opposing, positions. The first time an individual person did appear on the scene and performed a role in distinction from the communal singing chorus, was probably when its leader started singing calls which were answered by the group of singers. As such the group and its leader would in their mimetic acts not represent very different, let alone contrasting, roles. This was about to change drastically when actual dialogues were added to the singing parts. "Aeschylus was the first to increase the number of actors from one to two; he also reduced the role of the chorus and made the dialogue the major element in the play. Sophocles increased the number of actors to three", Aristotle writes, crediting the two most celebrated tragedians with the crucial innovation of introducing dialogue into the venerable art of tragedy (Poetics, 1449a 16-19, ((Aristotle et al., 1968, 9))).

With the chorus now being constrained to a more secondary role, often merely commenting on, or responding to, the events on stage, the focus had shifted to two or more interacting protagonists who often no longer belonged to

the same group. On the contrary, instead of the representation of a single voice or perspective, tragedy and comedy would now confront its audiences with clearly distinct individuals, at times differing in norms, histories, social positions, genders, characters¹ and especially in the actions that demonstrated these differences. Even those plays in which members from the same family appear, like Aeschylus' trilogy *Oresteia*, the *Elektra*'s by Sophocles and Euripides, the *Iphigeneia*'s by Euripides and Sophocles' *Orestes*, are driven by differences in characters, oppositions in perspectives and oftentimes actions through which family members Agamemnon, Clytemnestra, Iphigeneia, Elektra, Orestes, and others murder and revenge each other or instead try to resolve their conflicts (cf., Keestra (1999)). In so doing, these tragic individuals have to navigate between sometimes contradictory appeals, relying upon their autonomy and their freedom, and can no longer naïvely rely on the gods as their Homeric predecessors did (Snell (1975)).

This short sketch emphasises the emergence of pluralism and even dissonance of voices in ancient tragedy. Below I will briefly pause on pluralism and its implications, yet it is important to first note the importance of recognising this pluralism. Ancient Greek culture and philosophy, from Homer via the Ionian natural philosophers to Plato, is often characterised as having a tendency towards unity and monism, describing, and explaining reality in as few elements or principles as possible. Whether it is a single principle like Thales' water in its different phases, Anaximander's 'apeiron' or indefinite, the Parmenidean and spherical 'One', or even the platonic idea of the Good: dynamics of change and development are hard to explain with such simplicity. Or to use Aristotle's musical metaphor: "when we say [that] the non-musical man becomes a musical man, both what becomes and what it becomes are complex" (*Physics*, 190 a 3-4, (Aristotle (1984))) for the explanation of which a monism of principles is insufficient. This preference for unity and monism holds even for Greek polytheism, even if that term suggests otherwise. Notwithstanding the presence of multiple gods, the Greek pantheon is unified as the 'Olympian gods appear as a family community' with a 'compactness and clarity of organisation' ((Burkert, 1985, 218)).

Although alternative views did exist before, a decisive rift in this monist tradition occurred with the popularity of the sophists, among others, who would become prominent in the public eye around the time when tragedies demonstrated the important roles that diversity and pluralism play in human affairs.² Even more so, the tragedies did present diversity and pluralism while demonstrating that unity and monism are no options for the tragic protagonists, struggling as they are "over

1. The Greek words for 'character' and 'habit' are probably related to each other, as Aristotle points out in *Nicomachean ethics* II,1.

2. Related to this pluralism is how tragedy portrays the human experience of being torn apart, which is connected to the Dionysian ritual of 'sparagmos': sacrificing an animal by tearing it apart (Storm (1998)).

the meaning of a single value, within a character (dilemmas), between characters (disagreements), between the cultural schemes different characters may represent” ((Apfel, 2011, 11)). Indeed, Aristotle himself affirms pluralisms of sorts, recognising variety in our knowledge with not all bodies of knowledge allowing the same certainty and validity as mathematics, for example. Moreover, mathematics itself, building upon axiomatics, allows for varieties because “if the principle should change, practically all that is proved from it would alter” (Eudemian Ethics, 1222 b 25). In the field of politics, something similar holds according to Aristotle, recognising that it is not necessarily a negative thing there being different political constitutions as politics does not allow the unity or monism that in other domains might be possible, in much the same way as citizens are different (Johnstone & Marienthal-Maschler (1962)). In addition to a pluralism of knowledge Aristotle has embraced a value pluralism, implying that “the goods that a human life appropriately values are plural and incommensurable” each of which might deserve our commitment without there being an overarching measure allowing us to compare and rank them ((Nussbaum, 1999, 182)).

What this brief history shows is that though our tradition may show on average a preference for unity and monism, pluralism has been present from the beginning as well, like in the pluralism of gods and of tragedy’s voices, associated with a pluralism of forms of knowledge and of values. I will now briefly attend to this pluralism of pluralisms, which will then be followed by an exposition of a contemporary position that surprisingly and convincingly embraces even a pluralism of logics. This raises the question whether denying monism in the domain of logic might raise the spectre of embracing inconsistency and contradiction when pluralism is accepted. Showing that this is not necessarily the case, I will finally reflect upon the important topic of how different configurations of these voices or positions are enabled by their pluralism.

Pluralism of pluralisms: recognising the value of multiple voices

Defending pluralism, Aristotle criticised the platonic position as interpreted by him, which allegedly holds that irrespective of differences, a thorough reflection on the limitations of human knowledge should convince all rational beings to ascribe to a monistic position. According to this monism, apparent differences in the nature and validity of knowledge and ethics are simply due to flaws in reasoning. Yet Aristotle is also critical of the opposing, skeptical position which maintains that no reliable knowledge or ethical reasoning is at all possible. Aristotle rejects this skeptical position as he maintains that it fails in recognising the ‘variety and fluctuations’ that are prevalent in multiple domains with which

humans occupy themselves including ethics and science (Johnstone & Marienthal-Maschler (1962)). Indeed, acknowledging variability of human experiences and reflections has led Aristotle to accept pluralism in a similar fashion as Rescher does more than two millennia later: “The experiential diversity of differently situated rational inquirers must mean that they are destined to reach variant conclusions about the nature of things. In a human community of more than trivial size, dissensus rather than consensus is the normal condition” ((Rescher, 1993, 77)). Again, this pluralism is recognised without assuming that they eventually can be replaced by consensus or monism.

Such recognition of its irreducibility is key to pluralism. Take the first sentence of the Routledge Encyclopedia of Philosophy’s lemma on ‘pluralism’, which defines it as follows: “‘Pluralism’ is a broad term, applicable to any doctrine which maintains that there are ultimately many things, or many kinds of thing; in both these senses it is opposed to ‘monism.’” ((Craig, 1998, 463)). There being ‘ultimately’ many things or kinds of things is fundamental here, as it implies the irreducible plurality of these things – whether forms of knowledge or values or religions or meanings are intended, for example. Embracing pluralism about these things implies accepting that there are multiple correct or valid accounts about these possible which can coexist in some configuration.

It is important to distinguish pluralism from relativism as the two are often confused with each other. With pluralism recognising the validity of multiple accounts of certain things, relativism posits that the validity of any account is relative to some external factor. According to relativism, a form of knowledge or moral value is only valid relative to a certain culture or historical period, for example. Instead of accepting the correctness of multiple accounts in parallel, a relativist points out that each account is only valid in a limited sense. Most people will embrace a certain relativism regarding etiquette, for example, and accept that some behaviours are acceptable in certain situations while not in other contexts. Regarding knowledge such relativism would imply a rejection of the knowledge claim, which is also unnecessary as most phenomena allow epistemic pluralism without different accounts excluding each other as is more common when it comes to our social behaviours (cf., Cook (2010)).

Although monism and pluralism are contrasting positions, they are not unusually combined with each other. What appears to be a pluralist position can sometimes turn out to be a monist position at another level. Such a position entails that underlying the plurality is a hidden systematics, like a hierarchy, that eventually allows the reduction of the acknowledged multiplicity to a single, more foundational unit. An example may clarify this. Tragic conflict depends upon the differences between irreconcilable values that two or more protagonists uphold. In the *Antigone*, for example, we can observe the conflict between Antigone’s familial piety towards her fallen brother Polynices on the one hand and the loy-

alty to the state which makes King Creon forbid the burial of this rebel on the other. Sophocles' tragedy provides the spectators with the embodied experience and reflection that enable them to understand and empathise with both positions, making the values inherent in them appear equally valid and defensible. Indeed, the bleak ending of the tragedy makes it doubtful whether Sophocles himself believed in such conflict's resolution or reconciliation. In contrast, Hegel's interpretation amounts to a rejection of the subjective individuality of the protagonists, with their irreconcilable conflict's resolution being possible once they understand the necessity of another form of sociality – entailing a complex form of monism (Keestra (1999)).

Such reconciliation at another level is an example of *non-foundational pluralism*, with an apparent pluralism of (not fundamental) values being eventually related to another, more fundamental value. This is different from *foundational pluralism*, which does accept there being multiple sets of moral values available for shaping one's life, for example (Mason (2008)). Moreover, such foundational pluralism can be associated with another source of moral variability since it is possible that each value is 'multiply realisable'. So in addition to there being multiple fundamental values – like happiness and equality – a foundational pluralist can also accept that each of these are 'subjectively realised' in different ways by individuals. Happiness may be an important value for both religious persons and for secular political ideologists, for example, but the way they're realising it will be determined partly by their distinct beliefs and reasoning (cf., (Audi, 2007, 27)).

Value or ethical pluralism and the tragic conflicts emanating from it are not only prevalent in the arts but generally close to human experience. Due to our finitude and to the contingency of our position and possibilities, for example, we are unable to realise all possible values in a single lifetime (Ivanhoe (2009)). This limitation can't be resolved by some form of monism, as we've just seen. Compared to this experience of irreconcilable value pluralism, epistemic pluralism or the pluralism of knowledge is strikingly different. Although most people will accept multiple accounts of a factual situation, they will still maintain that reality itself is singular. So how might one subscribe to explanatory pluralism – to focus on a specific form of epistemic pluralism – without succumbing to some form of metaphysical pluralism? Since an explanation entails an answer to a specific question, the fact that we can ask multiple questions about a single phenomenon corresponds with there being several explanations available (Ruben (1992)). Human action as well as understanding human action, for example, allow for explanatory pluralism as neuroscientific, psychological, sociological and hermeneutic explanations each offer valid perspectives which do not exclude each other (Keestra (2014, 2015)).

Explanatory pluralism can imply that we develop theories and laws that help us to understand the same phenomenon at different levels of description which

can not only co-exist but even co-evolve: language processing can be explained both by cognitive psychological and neurobiological theories, each addressing different yet related features of the process (Looren de Jong (2002)). These levels of description refer to the fact that a single phenomenon – like climate change or consciousness – can be described and explained in various ways. Considering it as a complex system composed of components, subcomponents, and their interactions, we can offer multiple non-overlapping ‘decompositions’ of it. A fruit fly, for example, can be decomposed or described in terms of its physiological systems, with nervous, muscular, and other components organised in a specific way in its body. Entirely different is the representation of water by its physicochemical dispositions, as water is the main ingredient spread all over its body making this representation rather uniform (Wimsatt (2007)).

Here again, pluralism must not be assumed to be reducible to either one or to a more fundamental type or level of explanation. Interdisciplinary integration of different explanations being still a goal, this does not entail some form of monism or reductionism (McCauley & Bechtel (2001)). Instead, explanatory pluralism accepts the current plurality of theories, methods and data as a consequence of the complex dynamic realities of the living and social worlds – and to some extent the (quantum-)physical world, too. This complexity allows for the pluralism of decompositions that was noted above, but another feature of it is the presence of multiple causal relations within a single system which are different in nature. Part of that complex reality is its multi-causality, with multiple causal factors interacting dynamically with each other, which is another reason why some scholars defend pluralism while contending that it is improbable to develop a single comprehensive account of reality (Kellert et al. (2006)).

Much more might be said about the two forms of pluralism treated here. In addition, there are many more forms of philosophical pluralism available, including metaphysical and ontological pluralism, semantic pluralism, aesthetic pluralism, scientific pluralism: indeed, there is a ‘plurality of pluralisms’ (Wylie (2015)). Whatever object domain is at stake, it allows the development of multiple systematic and consistent perspectives that can figure next to each other and be involved in rational argumentation or determine our actions. Now one may ask whether similar considerations apply to the domain of logic and reasoning: is logical pluralism possible, or should we expect this to be a non-foundational pluralism? Taking up this question, I will consider the logical pluralism that is involved in the insightful work by van Lambalgen and Stenning on human reasoning. Does the logical pluralism they present, eventually give way to logical monism? More generally, I will ask whether there is an alternative to the monistic option for resolving or even dissolving this plurality of pluralisms, by considering different configurations in which a plurality of perspectives might be related to each other. Such configurations will be treated after the next section.

Change of scenery: human reasoning as a pluralist affair

Unity and monism were not just guiding principles in western antiquity but remained in some sense in place until more recent times. With monotheism penetrating most domains of western (and Mediterranean) societies and scientific reductionism motivating the work of most scholars for many centuries, pluralism remained at most a marginal if not suppressed position. This also held for philosophers, probably mostly because of the anxiety that lifting the grip of monism might immediately bring the risk of a position according to which ‘Anything goes’. Introducing a volume on philosophy and pluralism, the editor captures this sentiment succinctly: “Those unsympathetic to monism are also anxious to distinguish pluralism from relativism. That no single correct answer can be agreed upon does not mean that each and every answer is true” ((Archard, 1996, 2)). Applying our choral metaphor again we can shed stark light on this sentiment: whenever we want to go beyond simple monophony, we’re not immediately handing over to a cacophony without any structure. Instead, the alternative to monophony can be a polyphony with different harmonic structures, some of which might not easily give away the interdependence or relations between the different voices. Further down I will more closely discuss pluralism and the possibilities it offers, yet before doing so I will briefly point out how a similar struggle between monism and pluralism is observable in the field of logic and the interdisciplinary study of human reasoning. For this I will take inspiration from Michiel van Lambalgen’s work, especially his co-authored provocative monograph *Human Reasoning and Cognitive Science* (Stenning & van Lambalgen (2008)).

Bringing together insights from logic, semantics, cognitive psychology, and neuroscience, with the addition of original empirical research in human interpretation and reasoning, logician van Lambalgen and cognitive scientist Keith Stenning offer a fresh and convincing argument about human reasoning and the logics employed in it. Logics, in the plural indeed, since they take issue with the generally held, traditional position that there is only a single logic which underlies or governs all valid human reasoning. Indeed, they diagnose how in classical logic and even still for Frege “the normativity of logic seems to be bound up with the uniqueness of logic” ((Stenning & van Lambalgen, 2008, 11)). In contrast to this position, their argument amounts to a very different one which has implications both for the relation between the logic of reasoning and the interpretation of linguistic expressions with the norms involved: “our answer will be that norms apply to instances of reasoning only after the interpretation of the (logical and nonlogical) expressions in the argument has been fixed, and, furthermore, that there are in general multiple natural options for such interpretations, even for interpreting the logical expressions” (*ibid.*).

The authors elsewhere explore the fact that human cognition is extraordinary in that it allows humans to navigate between both domain specific reasoning as well as reason with surprising domain generality. The varieties in reasoning that can be observed in humans goes along with a ‘multiplicity of logics’, they argue, a multiplicity that is related to the multiple semantics required for distinct domains of reasoning ((Stenning & van Lambalgen, 2005, 2)). The semantics pertinent for a particular domain are open for discussion, as when the concepts and meanings we use to reason about train schedules can vary, as can those we employ in the social domain. Yet whenever we decide about the contents of a domain and its pertinent conceptual relations, a corresponding set of logical rules is determined with different sets of rules not necessarily being reducible to each other. Generally the process consists of two distinct steps that together support a form of logical pluralism: “We therefore view reasoning as consisting of two stages: first one has to establish the domain about which one reasons and its formal properties (what we will call “reasoning to an interpretation”) and only after this initial step has been taken can one’s reasoning be guided by formal laws (what we will call “reasoning from an interpretation”) ((Stenning & van Lambalgen, 2008, 20)).

In addition to the logical pluralism implied by there being multiple domains of reasoning, there is one more reason why humans are so used to this pluralism, albeit more implicitly. In a way, then, humans are reasoning on a daily basis with different logics even within a single domain – a fact that has only more recently been recognised as such. Moreover, these different logics applied to a single domain play out even within a single brain – compare a singer who engages not only with polyphony in an ensemble but also individually by using the overtones she can produce simultaneously. For this, van Lambalgen and Stenning build upon so-called dual system or dual process theories, which occupy an important role in the psychological explanation of reasoning in a wide sense. Psychologist and Nobel prize winner Kahneman famously distinguishes these two systems as either processing information fast, intuitive, and emotional – System 1 – or as processing it rather slow, more deliberative, and more rational – System 2 (Kahneman (2011)).

Typically, automatic system 1 processing is considered not to perform logical reasoning, which van Lambalgen and Stenning reject as being grounded in a flawed understanding of logic. They argue that a different, non-classical logic is being employed, which has largely gone unnoticed in psychological reasoning studies: “We conceptualise the part that logic plays in system 1 as being the foundation of routine discourse interpretation, when a suitable knowledge base already exists in long-term memory” ((Stenning & van Lambalgen, 2008, 124)). Thus logical pluralism depends upon there being distinct domains of reasoning in parallel with there being different kinds of reasoning processes engaged with a particular domain.

This observation of a form of logical pluralism raises the question how the different processes and their logics are related to each other. Instead of considering the two processing systems as being independent with regard to their respective functions and regarding their developmental history in humans, van Lambalgen and Stenning are interested in their interdependence. While we share system 1 with large sections of the animal kingdom, system 2 is probably less common even though it is not per se dependent upon literacy and schooling. The two systems indeed operate according to different underlying logics, with automatic processes performing 'defeasible closed world reasoning, and deliberative processes performing either classical or closed world reasoning. Importantly, the interactions between the systems emerge at an early stage of human development with the rather deliberative system 2 processes starting "as repair processes when a system 1 process meets an impasse and gradually shade into full blown adversarial discourses, perhaps with their underlying logic being classical" ((Stenning & van Lambalgen, 2005, 130)).

Logical pluralism is here defended as a consequence of there being different systems of reasoning, applied to distinct domains. However, this does not rule out the option that this pluralism is associated with logical monism at another level.³ The authors indeed argue that a multiplicity of logics is possible because multiple choices are possible for setting the parameters that determine the semantics and syntax of a particular language. This apparent pluralism, though, does not imply that inferential or consequence relations are equally flexible. Indeed, their logical pluralism is not a foundational pluralism, as we can learn from their comparison with multiple concrete grammars related to a single underlying universal grammar: "we do not claim that a logic can be seen as a point in a well-behaved many-dimensional space. The use of the term parameter here is analogous to that in generative linguistics, where universal grammar is thought to give rise to concrete grammars by fixing parameters such as word order" ((Stenning & van Lambalgen, 2008, 25)).

Nonetheless, with dual processes employing different logics, their explanations do reveal the production of different outcomes in response to the same task by one and the same person. Apparently that person processes identical information differently, depending upon the activation of one of two different processes, each with its own properties and – as we noted above – logic. Dual process or dual systems theories are applied widely, from the social domain (Chaiken & Trope (1999)) via moral deliberation (Craigie (2011)) and reasoning (Frankish & Evans (2009)) to the explanation and treatment of addiction (Wiers et al., 2007)

3. I'm grateful for Martin Stokhof's comments on an earlier version of this text, which included some pressing questions regarding the logical pluralism I am ascribing here to Michiel. This useful exchange echoed the many inspiring conversations I've enjoyed with Michiel and Martin as my co-supervisors. Remaining misunderstandings in this text are, again, due to me.

and the determination of human action (Keestra (2014)). Going back to a platonic metaphor, these two systems have been referred to also as the rider and its horse, with the horse representing system 1 and the rider with their limited capacities working to control and constrain the animal. Indeed, van Lambalgen and Stenning suggest that system 2 evolved more recently, with the interactions between the two systems contributing to specific human capacities in planning, false belief tasks and others (Stenning & van Lambalgen (2005)). Apparently, it is with the presence of two voices in one mind that these can be performed which then raises the question about their interactions or configurations: given this pluralism of voices, we might ask how they can be related to each other? What counterpoint or other configurations are possible? It is this question that we will focus upon in this chapter.

Pluralism and counterpoint: from isolation to interactions

It required an important step to enable a dialogue and even conflict on the Greek stage, I argued above. The tension between monism and pluralism has partly shaped our tradition and thought. A more recent development is that of polyphony in music which has been accompanied by the unfolding of thoughts on counterpoint: “the combination of simultaneously sounding musical lines according to a system of rules” ((Sachs & Dahlhaus, 2001, 1)). If multiple voices are added to a musical score, how should these be configured such that the total effect is more than a mere addition of notes, is musically meaningful and is aesthetically pleasing as well? Over the centuries, different systems have been laid out, offering examples and rules for the creation of scores that benefit from the availability of more than just a single, melodic, voice. Building upon harmonic ideas – about consonance and dissonance, for example – counterpoint entailed writing a score such that the musical meanings of different voices are dependent upon each other while providing means for musical progression – as when an alternation between consonant and dissonant chords resolves eventually in harmony or when a fugue offers variation and repetition simultaneously. The rules underlying counterpoint have been constantly in flux, in many ways gradually offering more freedom and possibilities to composers, with contemporary atonal composition techniques often still involving counterpoint. Interestingly, counterpoint and the configurations between ‘Leitmotifs’ allowed composers like Wagner and Strauss even to express literary ideas, representing *dramatis personae*, themes and their relations in musical form (Sachs & Dahlhaus (2001)). In this section I will explore some configurations pertaining to the discussion of pluralism above.

What configurations can we observe in the plurality of pluralisms? How are voices, positions or perspectives related to each other such that they suggest a progression or development in which these merge into a single one, or remain a

pluralism? Above, we already mentioned the monism to which pluralism is often opposed and observed that there are several ways in which apparent pluralism might resolve in monism. Such resolution of a pluralism of voices or perspectives might occur in at least two ways: one of the voices will emerge as the dominant voice, into which others are dissolved. Alternatively, the resolution of a – perhaps dissonant – chord of voices leads to a third, hitherto absent voice. In explanatory pluralism such a resolution typically involves the reduction of different levels of explanation to a more fundamental level that refers to fundamental particles, neurophysiology and the like. Such a resolution after a phase of pluralism is called *moderate* or *temporary pluralism* in Van Bouwel’s account of explanatory pluralisms in psychiatry (van Bouwel (2014)).

Genuine pluralism, however, would not permit such reduction to a monist position. In contrast to monism, *antagonistic pluralism* maintains that we’re sometimes forced to choose between alternative concepts or explanations as they mutually exclude each other (Currie & Killin (2016)). Such antagonism plays out differently, depending upon the domain at stake. Indeed, this might imply *incompatible pluralism*, which especially applies to normative or moral positions. Tragedy offers us many examples of this, as when Agamemnon cannot both implement the values of a war hero and those of a father, since the former requires the sacrifice of his daughter Iphigeneia (Apfel (2011)). It might be argued that this conflict is not just a matter of the incompatibility of both values, but that it is also impossible to compare or order them as they apply non-overlapping measures, which makes the conflict an example of *incommensurable pluralism* (Mason (2008)). Conflicting values force a person to make a choice, even if it is impossible to compare these. Such a choice is not always necessary in the context of scientific pluralism, as this allows for the presence of incompatible and incommensurable alternatives, even for ‘*Anything goes*’ pluralism which amounts to “retaining all, possibly inconsistent, theories that emerge from a community of investigators.” ((Mitchell, 2003, 186)). Monism and ‘*Anything goes*’ pluralism can be considered two extremes on a continuum of forms of pluralism, which at both extremes implies the absence of a specific configuration and relation or interaction between options involved: for monism implies singularity and ‘*Anything goes* pluralism’ entails indefinite or absent relations between available options (Mitchell (2003), van Bouwel (2014)).

Between monism and ‘*Anything goes* pluralism’ we can distinguish several forms of *complementary pluralism*, involving some relation between the perspectives at stake. In the case of complementary pluralism regarding music, for example, multiple concepts of music can coexist and even complement each other. Whether taken as a form of communication or an art form, each perspective presents an equally valid perspective on music by highlighting different aspects of music or its function across times (Currie & Killin (2016)). The challenge facing

us now, is whether the perspectives are not only complementary to each other but can be related to each other in a more productive sense.

Focusing on scientific pluralism, Mitchell defends *integrative pluralism* as biologists typically offer an integrated explanation of a multi-causal and contingent phenomenon, while employing theories and models that remain relatively independent although being compatible with each other (Mitchell (2003)). Such pluralism is also at stake in most forms of interdisciplinary explanations, integrating theories, methods and/or results from multiple disciplines each of which alone can explain partly a phenomenon's variability whereas integrated a more comprehensive explanation is possible (Keestra et al. (In press)). Van Lambalgen offers original examples of such interdisciplinary explanations, for example integrating logical analysis with cognitive psychological and neuroscientific investigations of reasoning and interpretation in normal and autistic subjects: logical and explanatory pluralism being involved in integrative pluralist results (Baggio et al. (2008), Pijnacker et al. (2009)).

However, integration or synthesis should not be expected to be the end result of all such interdisciplinary endeavours. Insisting on the possibility that not all partial explanations might be integrated with each other, van Bouwel is not satisfied with this integrative pluralism as scientific telos. Instead, he adds *interactive pluralism* to the continuum or list of options. Leaving open the ir/reconcilability of pluralism, it also allows for the interaction with heterodox perspectives (van Bouwel (2014)). Allowing such non-mainstream perspectives to play a role in pluralism is relevant, given a history of science in which these have repeatedly contributed to scientific revolutions and progress.

Final chord: pluralism and diversity

Irrespective of whether pluralism is found in the domain of values of science or elsewhere, the encounter with different configurations shows how some forms of pluralism are likely to be productive, whereas others are less so. There is, I think, an interesting relation between the dual system pluralism in human reasoning according to Stenning and van Lambalgen's account, and the interactive pluralism presented by van Bouwel. With regard to human reasoning, the authors contend that the plurality of processes interacting with each other such that one process repairs the other process's flaws improve on what a single process might accomplish on its own. Similarly, van Bouwel presents a set of norms - borrowed from Longino (Longino (2002))- that structure a productive interaction or dialogue between perspectives. Although both arguments apply to quite different phenomena - cognitive processes versus scientific perspectives - they both in some sense defend interactive pluralism's contribution to our epistemic progress. This concurs with research on metacognition and reflection, which shows that if performed not

individually but with others, the explication and articulation of implicit assumptions and norms underlying our cognition is enhanced. It is the interaction and confrontation with a diversity of perspectives, norms, and positions that help us to recognise our own, which isolated self-reflection might not give away (Keestra (2017)). Van Lambalgen and Stenning as well argue that a diversity in reasoning styles is only to be expected given the contributions of genetic, environmental and experiential factors to human development. Interactional pluralism is implied in their appeal in the book's next to last sentence: "This understanding of why it "takes all types" (of people, to use a vernacular expression) might even contribute some much needed motivation for rubbing along with each other" ((Stenning & van Lambalgen, 2008, 366)). Compare again the pluralism of voices in choral singing: the beauty of a particular voice or melodic line is often enhanced by the polyphony and counterpoint in which it is bound.